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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,972	07/14/2003	Kristian Leo	10191/3272	5911
26646	7590	05/13/2005	EXAMINER	
KENYON & KENYON ONE BROADWAY NEW YORK, NY 10004			DOUGHERTY, THOMAS M	
			ART UNIT	PAPER NUMBER
			2834	

DATE MAILED: 05/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	Application No. 10/618,972	Applicant(s) LEO ET AL.	
	Examiner Thomas M. Dougherty	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 April 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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serial number:

10/618,972

2834

ART UNIT

Page

2

## DETAILED ACTION

### *Claim Objections*

Claims 3, 4 and 8 objected to because of the following informalities: the Greek symbol 'φ' in these claims has replaced the symbol 'μ' in the previous listing of the claims. The latter symbol is correct in indicating 'micro', while the 'φ' symbol appears to be a typographical error.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazmar (US 5,239,518) in view of Kazuo et al. (JP 9-202858). Kazmar shows (fig. 5) a piezoelectric component comprising: a ceramic actuator (204) having a coating made of a heat conductive elastomer.

Kazmar does not discuss fillers in his heat conductive elastomer.

Kazuo et al. teach a heat conductive elastomer (thermoplastic) containing a filler of silicon dioxide. See their SOLUTION.

The proportion of the filler in the elastomer amounts to between 20 weight% and 79 weight%. Again, see their SOLUTION.

serial number

10/618,972

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2834

Art unit

Kazuo et al. do not show a piezoelectric component comprising a ceramic actuator.

The elastomer includes a bonding agent (resin, polyamide elastomer).

It would have been obvious to one having ordinary skill in the art to employ the heat conductive elastomer of Kazuo et al. for a device, such as that shown by Kazmar, at the time of the invention of Kazuo et al. in order to allow that piezoelectric component of Kazmar, having a ceramic actuator to provide a heat conductive elastomer which resists peeling, is excellent in impact resistance, excellent characteristics on mechanical strength, heat resistance etc. as noted in their PROBLEM TO BE SOLVED.

Claims 1, 3, 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazmar (US 5,239,518) in view of Fuji (JP 2000-232190). Kazmar shows (fig. 5) a piezoelectric component comprising: a ceramic actuator (204) having a coating made of a heat conductive elastomer.

Kazmar does not discuss fillers in his heat conductive elastomer.

Fuji teaches a heat conductive elastomer containing a specific filler of either boron nitride or silicon carbide. Note at page 3 of the translation, paragraphs 17 and 18 that it is noted that the filler can be chosen from one or more of a nitride, carbide and a basic metallic oxide. Such recitation thus broadly reads on any of aluminum dioxide, titanium dioxide, boron nitride, silicon carbide and silicon dioxide.

The filler has a grain size of between 0.1  $\mu\text{m}$  and 100  $\mu\text{m}$ . See page 3, paragraph 19, lines 2 and 3.

The grain size is between 1  $\mu\text{m}$  and 15  $\mu\text{m}$ . Again see page 3, par. 19, ll. 2-3.

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The coating has a thickness of less than 200  $\mu\text{m}$ . See paragraph 54, where it is noted that the thermally conductive elastomer is 500 micrometers or less, which range, covers that of the Applicants.

Fuji does not show a piezoelectric component comprising a ceramic actuator.

The elastomer includes a bonding agent (resin, polyamide elastomer).

It would have been obvious to one having ordinary skill in the art to employ the heat conductive elastomer of Fuji for a device, such as that shown by Kazmar, at the time of the invention of Fuji in order to allow that piezoelectric component of Kazmar, having a ceramic actuator to provide a heat conductive elastomer which allows for efficient heat dispersion as noted by Fuji at page 1, paragraph 4.

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazmar (US 5,239,518) in view of Fuji (JP 2000-232190) further in view of Asano (JP 1-287977). Given the invention of Kazmar and Fuji as noted above, they do not discuss weight percentages of a filler in their heat conductive elastomer.

Asano shows (fig. 1) a piezoelectric component (see title comprising: a piezoelectric material actuator (1) having a coating made of a heat conductive elastomer (see PURPOSE), which includes a filler manufactured based on aluminum nitride.

A proportion of the filler in the elastomer amounts to between 20 weight% and 79 weight%. See p. 440, col. 2, l. 17.

The proportion amounts to between 50 weight % and 60 weight%. See figure 4, which shows a filler percentage of 0% to 80%.

serial number

10/618,972

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2834

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Asano doesn't note specific use of a ceramic piezoelectric material. He doesn't note use of one of aluminum dioxide, titanium dioxide, boron nitride, silicon carbide and silicon dioxide.

It would have been obvious to one having ordinary skill in the art to use the weight percentages of Asano in the device of Kazmar and Fuji at the time of either invention, in either invention, taking advantage of the Asano teaching in his figure 4, because that range results in effective heat dissipation as noted by Asano in his PURPOSE. Furthermore, it would have been obvious to one having ordinary skill in the art to use the range of Asano in the combined invention of Kazmar and Fuji, since the material of Asano, which is aluminium nitride, is similar in function and used in the same fashion as the claimed materials of aluminum dioxide, titanium dioxide, boron nitride, silicon carbide and silicon dioxide, which materials are either directly mentioned by Fuji, along with aluminum nitride, or implicitly mentioned as noted above. Note that it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

### **Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Morley et al. ('074) note use of boron nitride in their heat conductive elastomer at col. 3, ll. 1-7. Sagal ('005) notes use of a heat conductive

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elastomer with boron nitride filler at page, 3, paragraph 23. Hastings ('108) notes use of boron nitride filler in his heat conductive elastomer at col. 1, ll. 31-35.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Direct inquiry to Examiner Dougherty at (571) 272-2022.



May 10, 2005

Phonetic Mr. Gayheart

**TOM DOUGHERTY**  
**PRIMARY EXAMINER**